DZNE
Deutsches Zentrum für Neurodegenerative Erkrankungen in der Helmholtz-Gemeinschaft

IKND

UCL
Institute of Cognitive Neuroscience

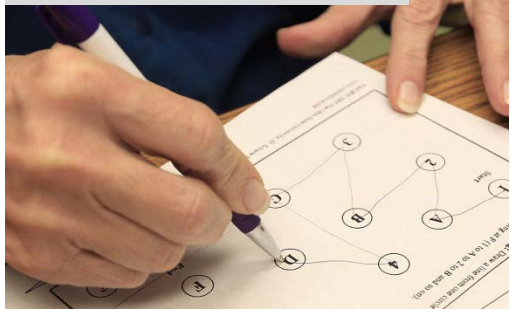
neotiv – App basiert Unterstützung von Menschen mit Gedächtnisproblemen

Emrah Duzel

neotiv™

Alzheimer Diagnostik bei Gedächtnisproblemen
Stand heute

“Papier”-Tests



- Wenige parallel Versionen
- Nicht anatomisch zugeordnet
- Verlaufs-Erfassung dauert Jahre

>500 EUR / Untersuchung

- Weitergehende Diagnostik basiert auf ungenauer kognitiver Testung

Aufwendig / hohe Schwelle

- Liquor-Diagnostik erforderlich

- Belastet Patienten, sorgt für anhaltende Verunsicherung und verursacht Kosten

Gerade Ältere Menschen mit subjektiven kognitiven Problemen sind verunsichert

Einfache, selbst durchführbare, wiederholbare und biologisch präzise Testmethoden sind erforderlich

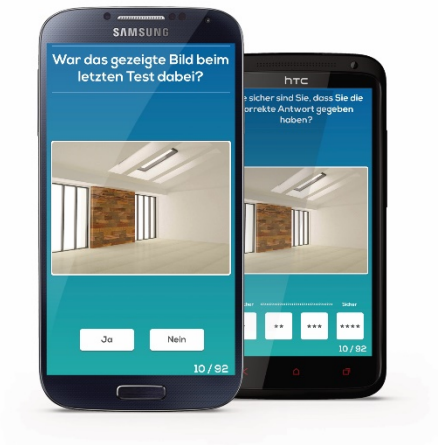
2005
Luca Bruno / AP

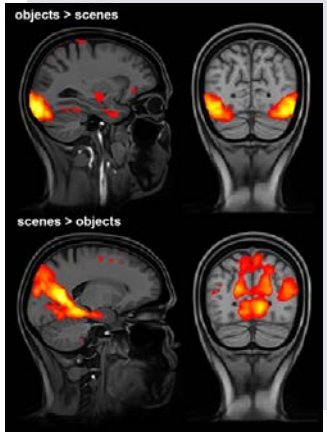
2013
NBC NEWS
Michael Sohn / AP

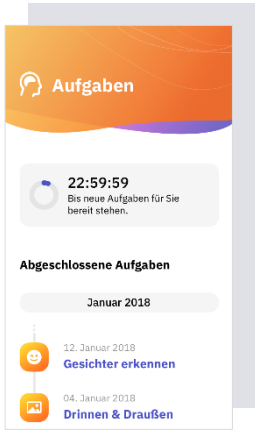
neotiv tests “Paradigmen”

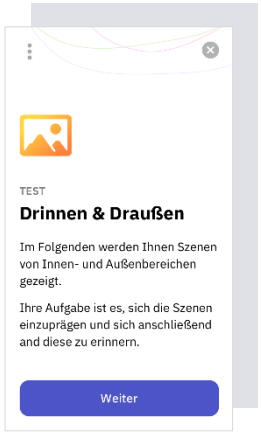
Wissenschaftliche Kohorten

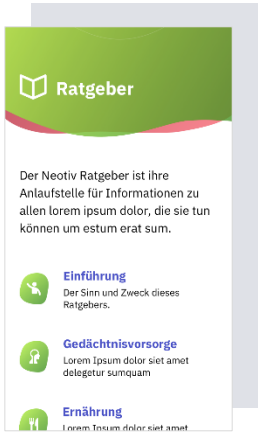
Biomarker











Wissenschaftlich validierte Tests

Life-Style

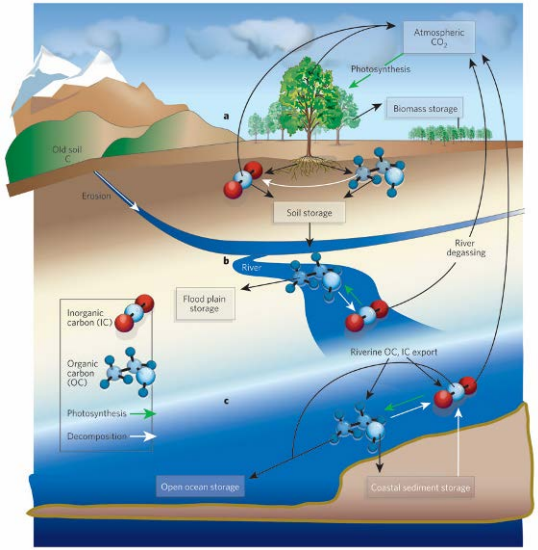
Ratgeber

Erlebnisse Erinnern

Episodisches Gedächtnis
Persönliche Ereignisse

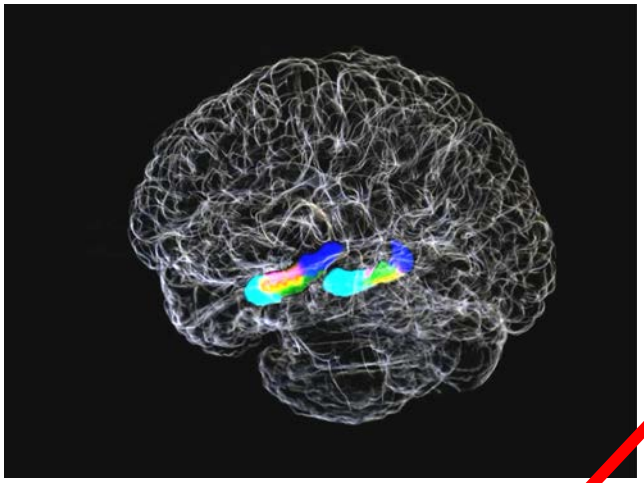
Einmalig

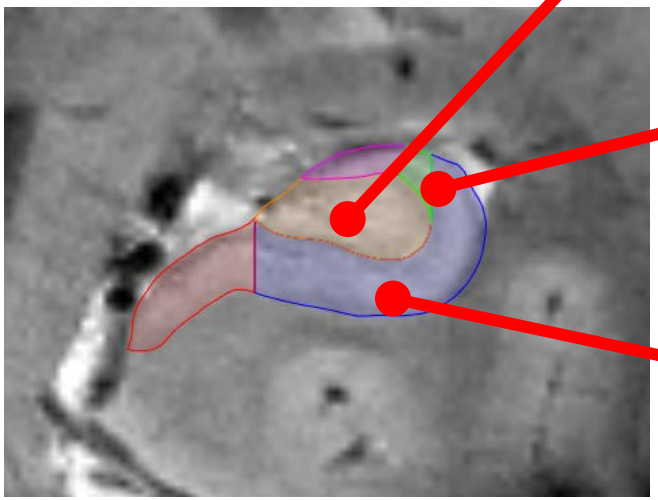
Semantisches Gedächtnis
Fakten



Prozedurales Gedächtnis
Fertigkeiten

Episodische Gedächtnisnetzwerke
„Gedächtnis-Prozesse“





Präzision
(Mustertrennung)

Flexibilität
(Mustervervollständigung)

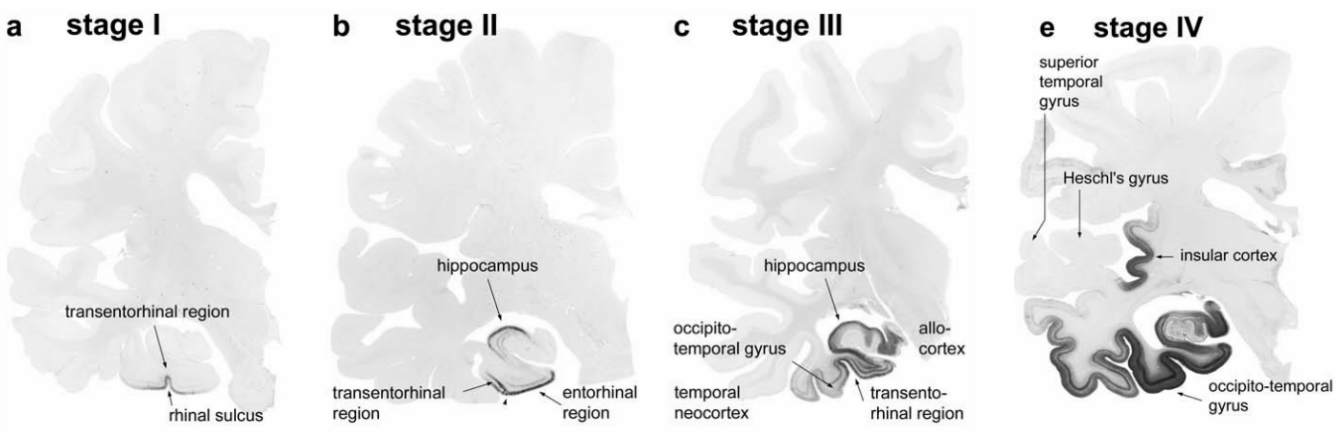
Stabilität
(Konsolidierung)

Wie verändert sich das Gedächtnis in der Alzheimer Erkrankung ?

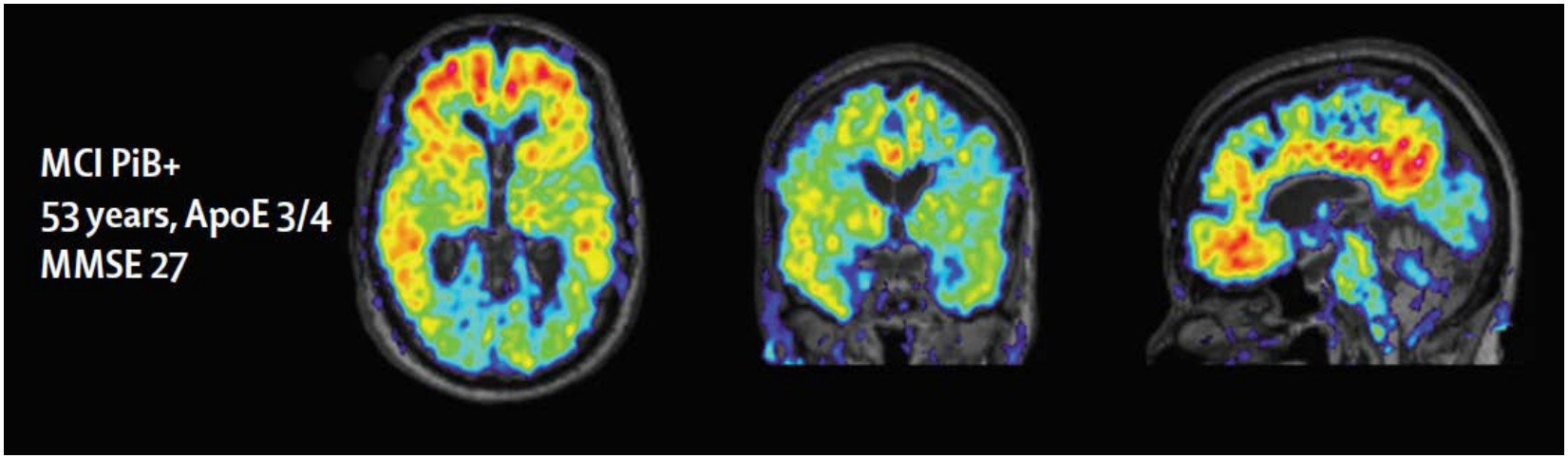
Wir wissen kaum etwas darüber

Anatomisch spezifische Tests, realistisch/naturalistische Teststimuli, funktionelle Bildgebung, Biomarker, künstliche Intelligenz

Tau und Amyloid-Pathologie in der Alzheimer Erkrankung



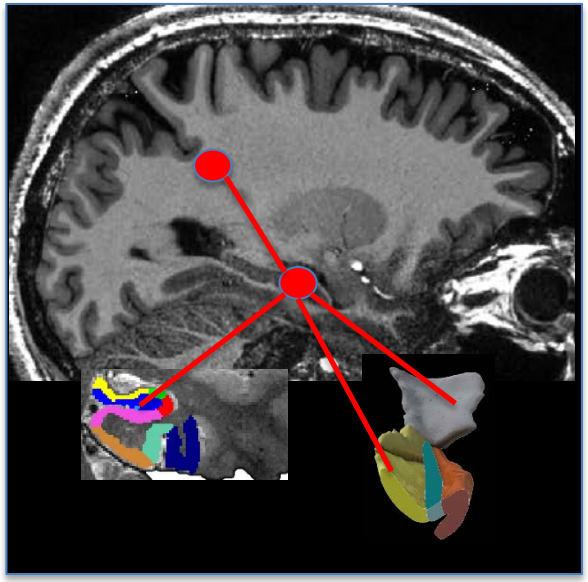
Braak and Tredici, 2013



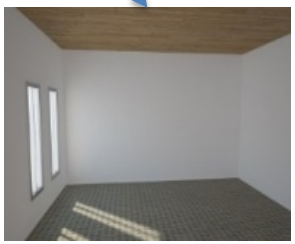
Winblad et al., 2015

Episodische Gedächtnisnetzwerke
„Gedächtnis-Inhalte“

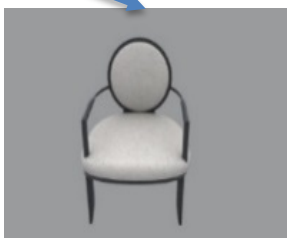
Komplexe „Szenen“



Global



Räume



Objekte

Lokal

DZNE
German Center for Neurodegenerative Diseases
within the Helmholtz Association

DELCODE

DZNE – Longitudinal Cognitive Impairment and Dementia Study

Subjektive Kognitive Probleme, MCI und frühe Alzheimer Erkrankung

PI: Frank Jessen
CoPI: Emrah Duzel

DZNE
German Center for Neurodegenerative Diseases
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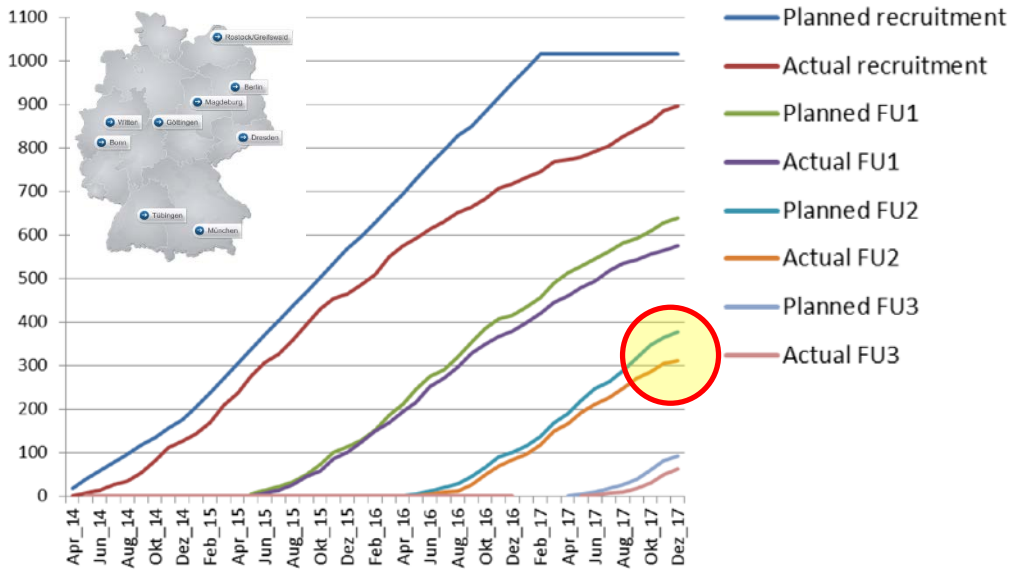
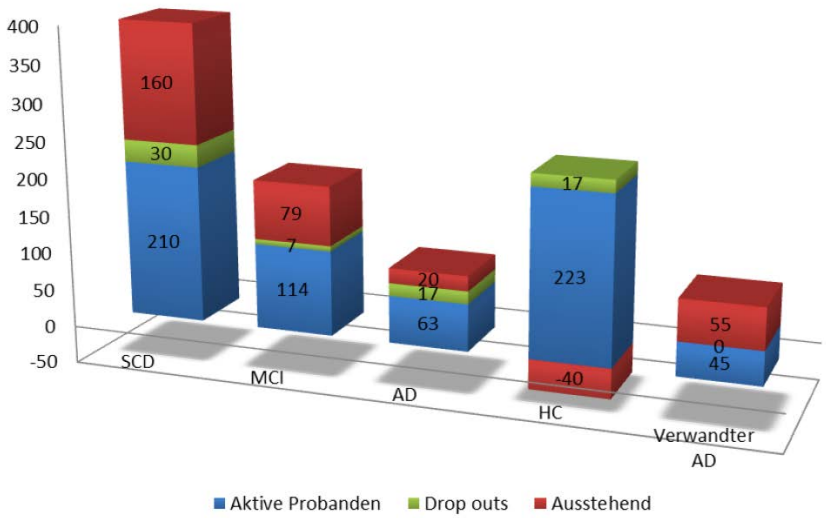
DELCODE Studie

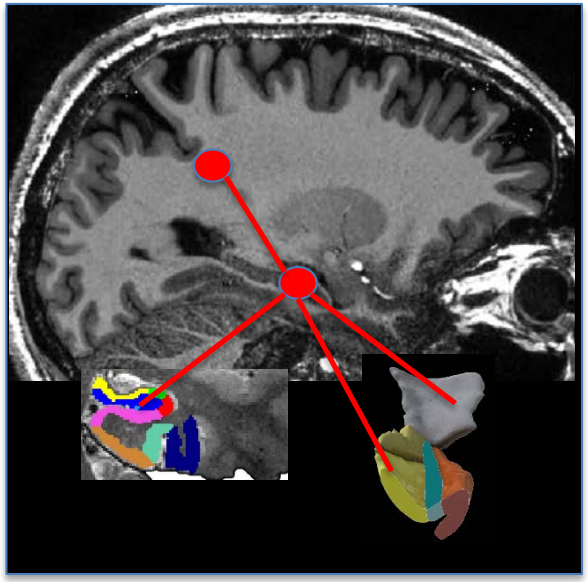




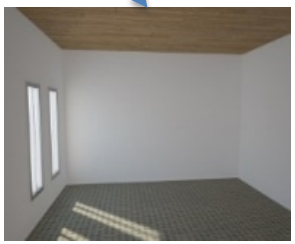
Annual follow-ups for 5 years

Episodische Gedächtnisnetzwerke
„Gedächtnis-Inhalte“

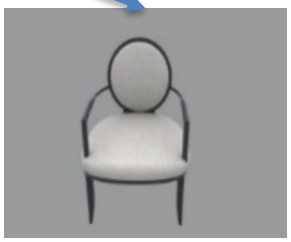
Komplexe „Szenen“



Global



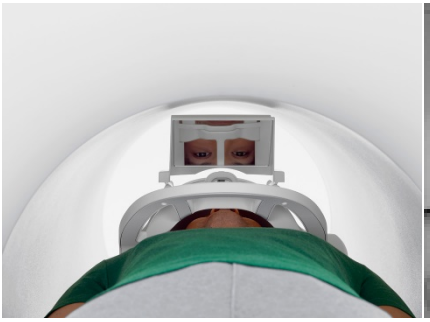
Räume

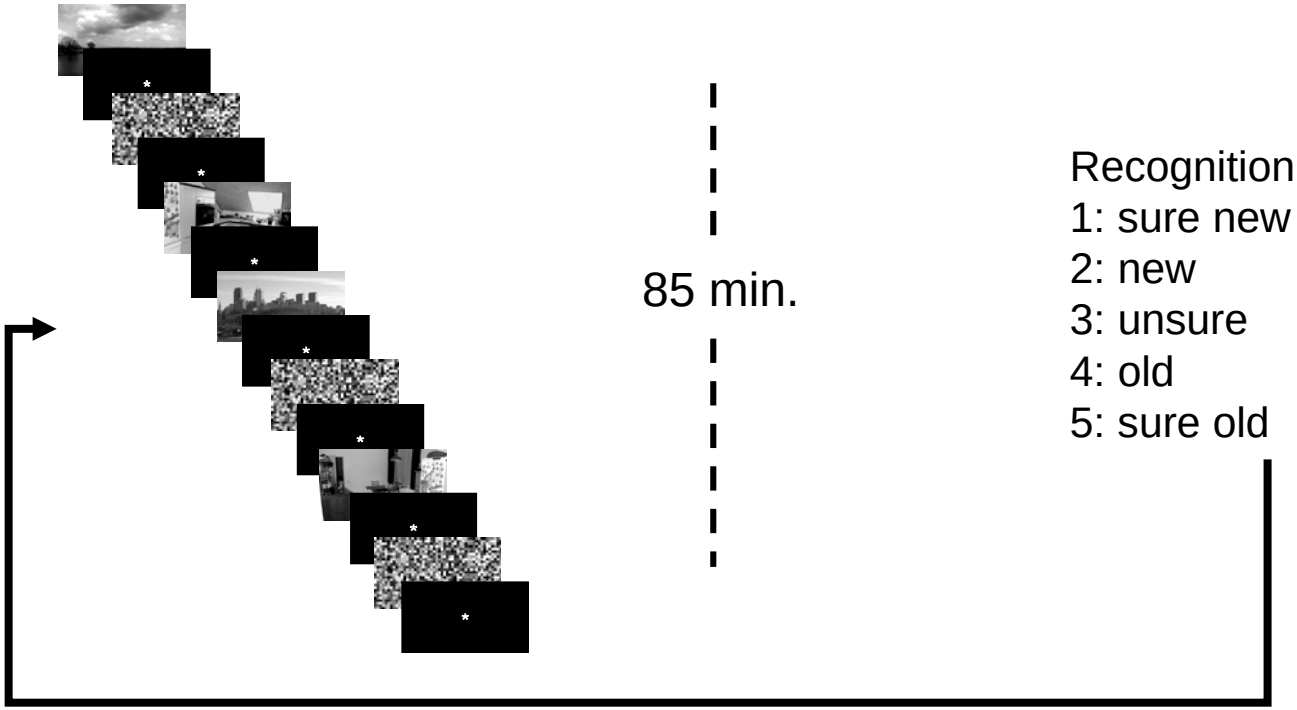


Objekte

Lokal

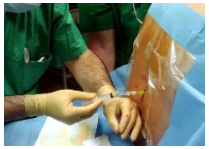
Wiedererkennung von komplexen “Szenen”



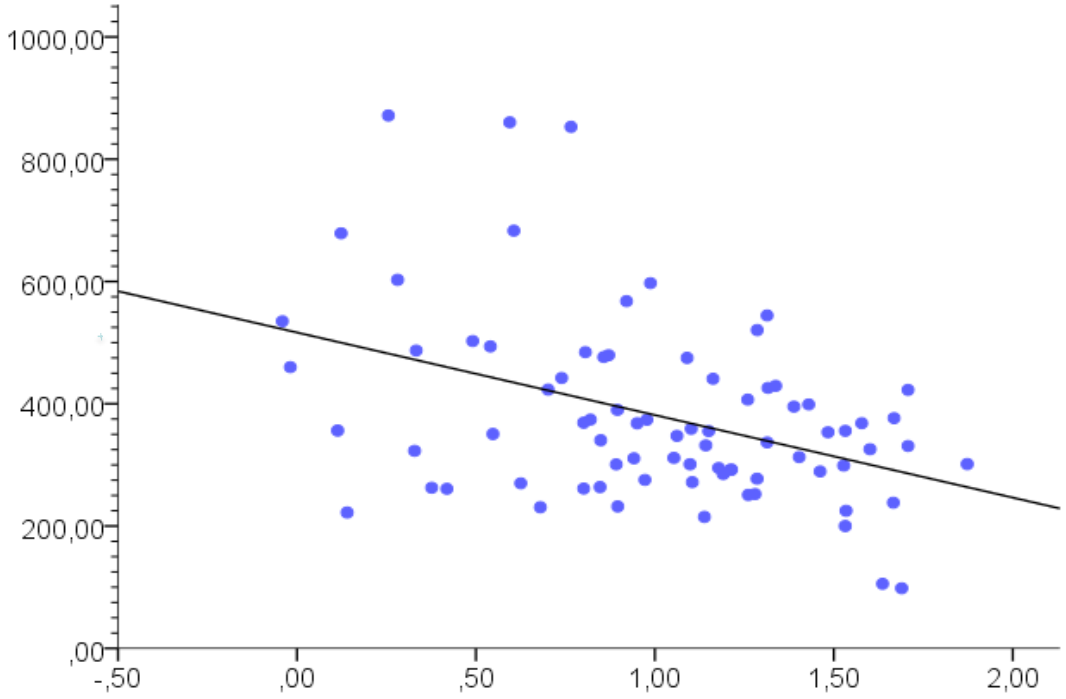


Duzel et al. Hippocampus 2011

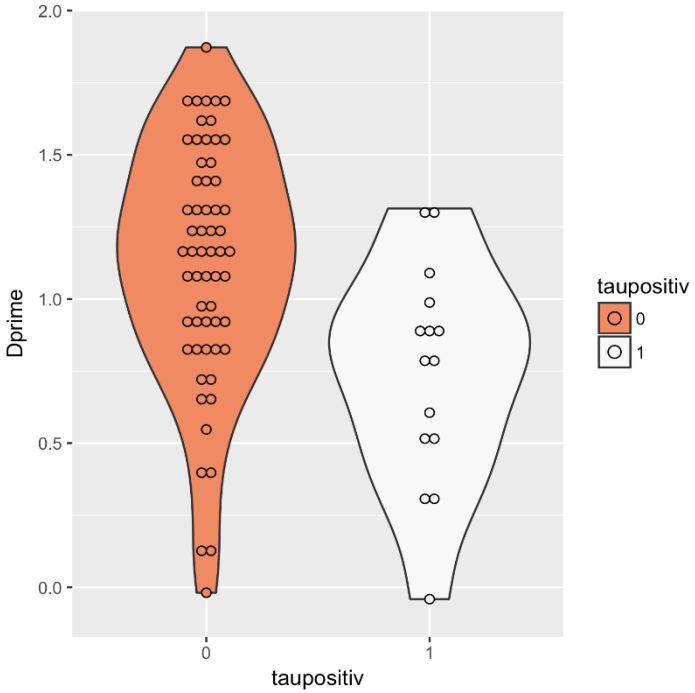
Wiedererkennung von komplexen “Szenen”



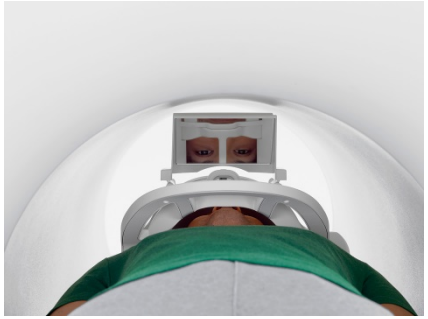
Tau im Liquor



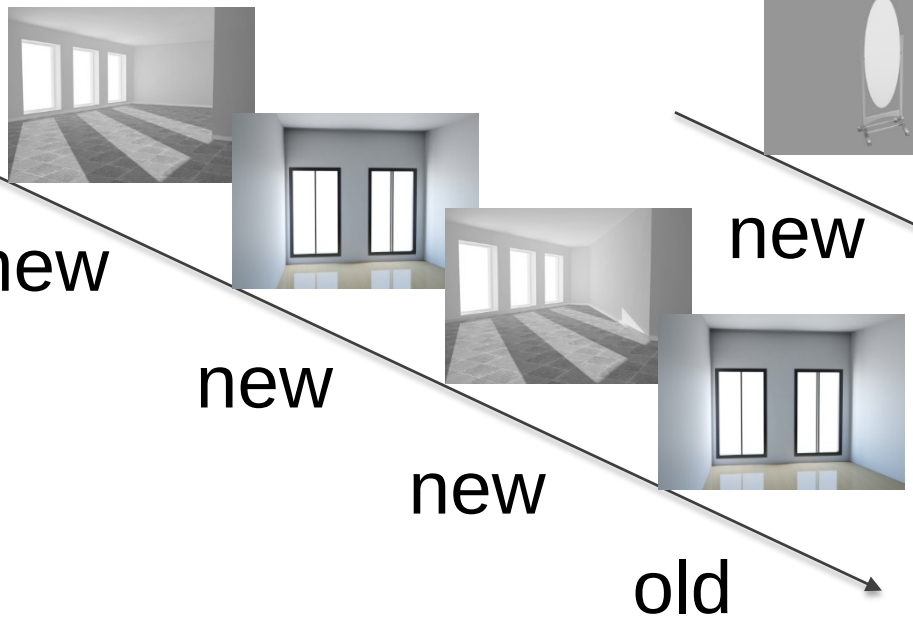
Wiedererkennung



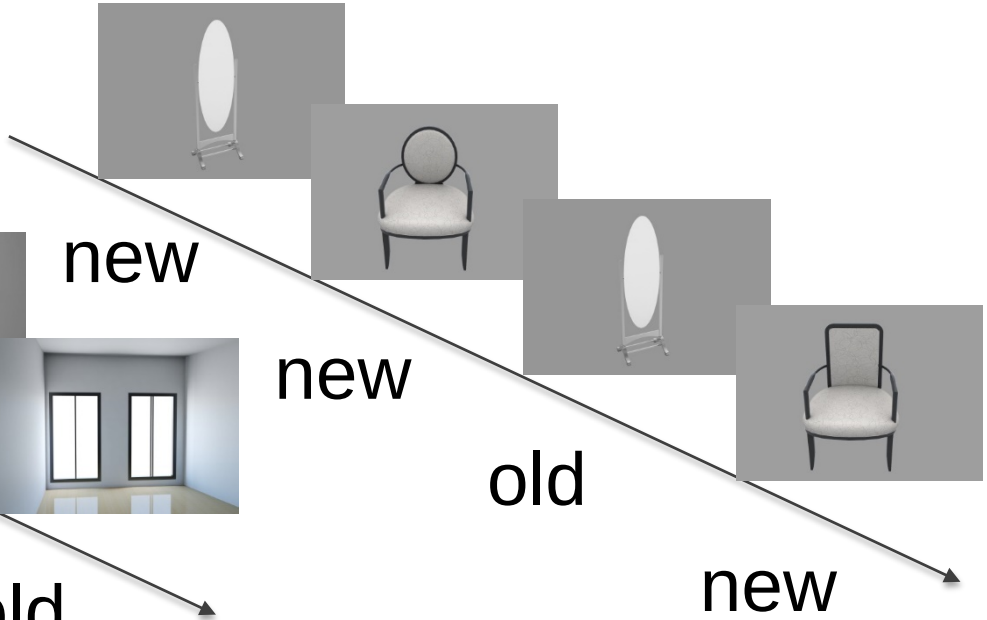
Präzises Gedächtnis für Räume und Objekte



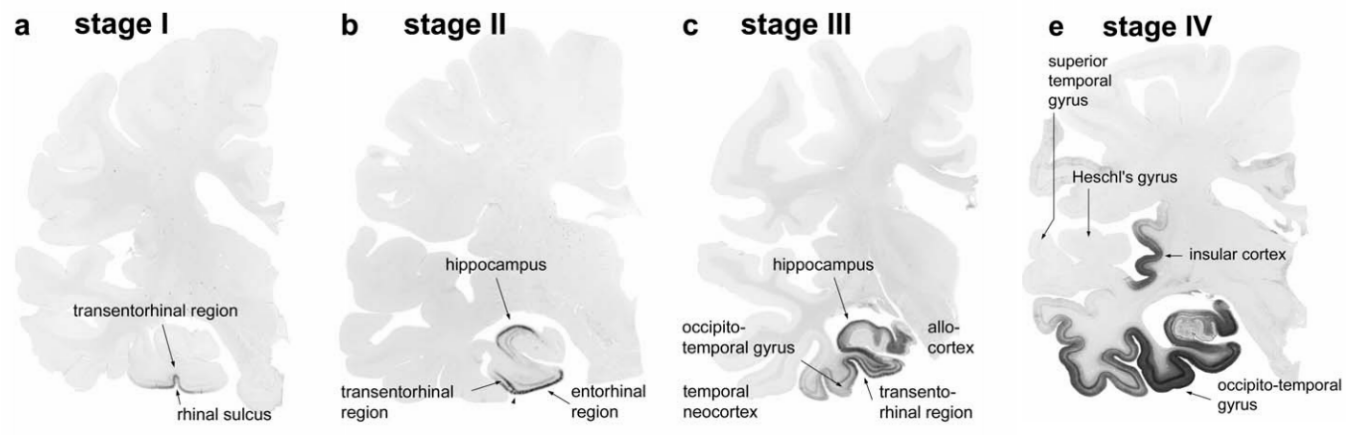
Räume

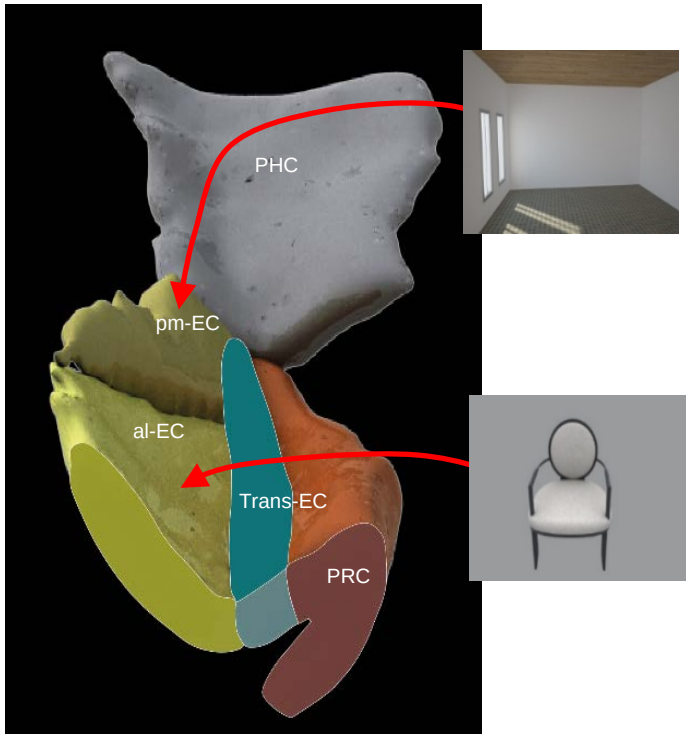


Objekte



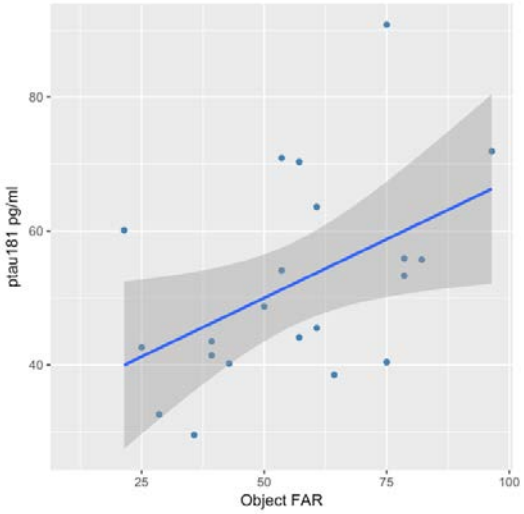
40 Minuten später: Wiedererkennungstest



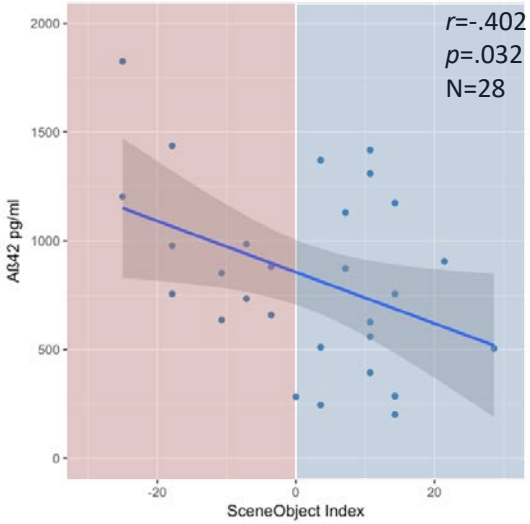


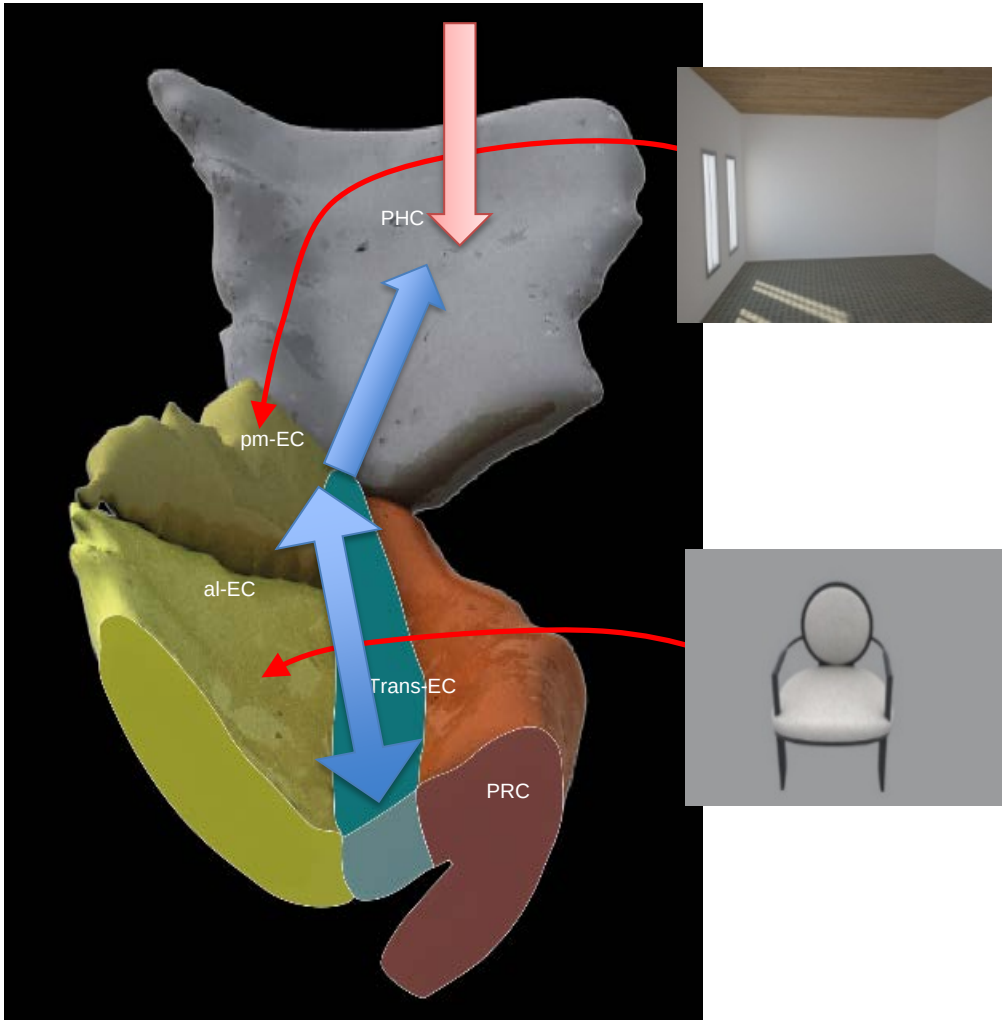
Objekte und Räume

Tau-Pathologie im Liquor (Aß42)



Amyloid-Pathologie im Liquor (Aß42)





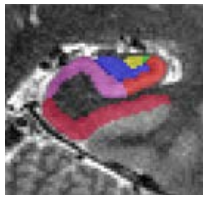
präklinisches Alzheimer

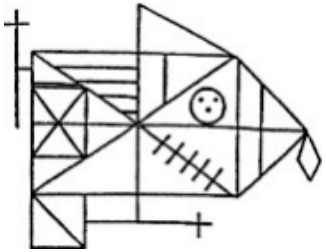
Grenzbereich zwischen altersassoziierten Gedächtnisproblemen und präklinischem Alzheimer

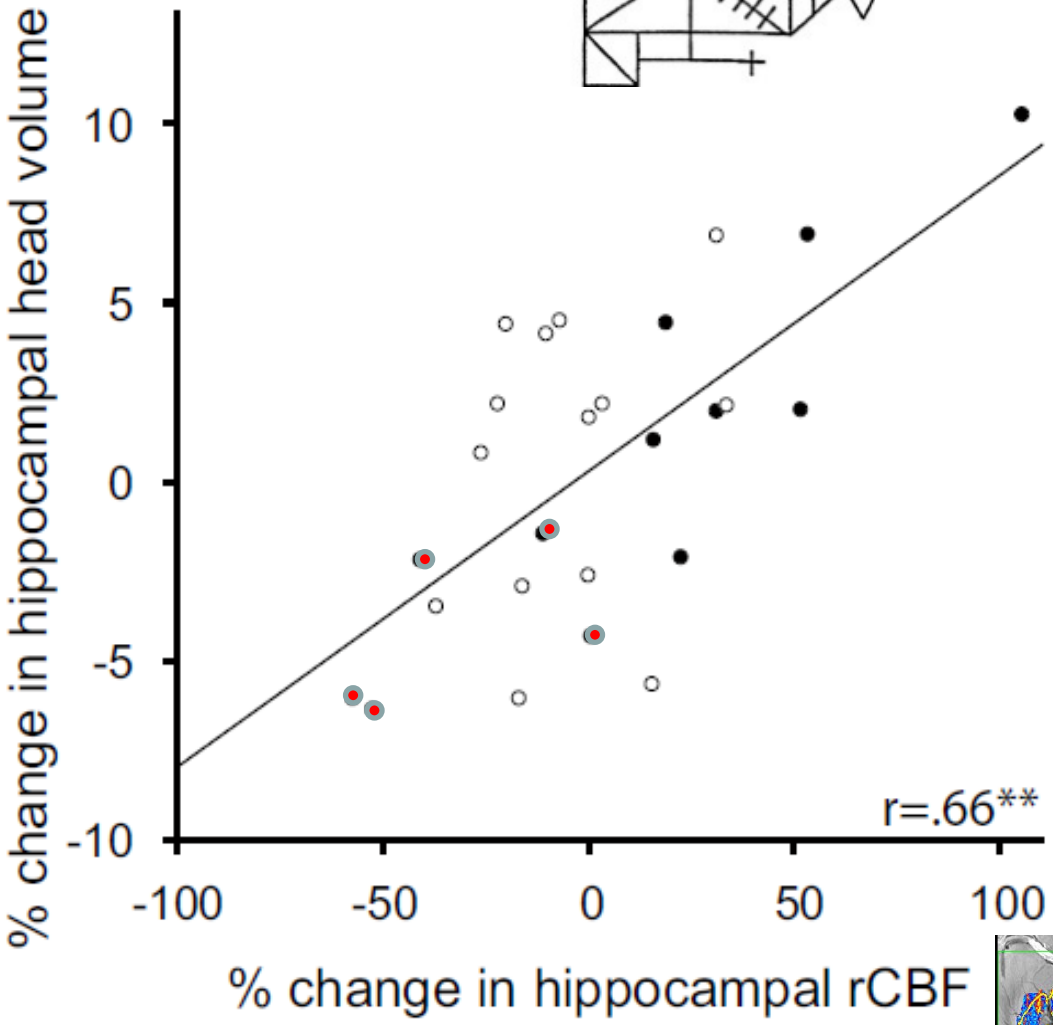
Gedächtnis ⇔ körperliche Anstrengung

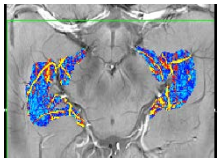
Quelle: Die Geschichte des Menschen *BBC.*

Jäger, Sammler und Nomaden - 70.000 bis 10.000 v. Chr.



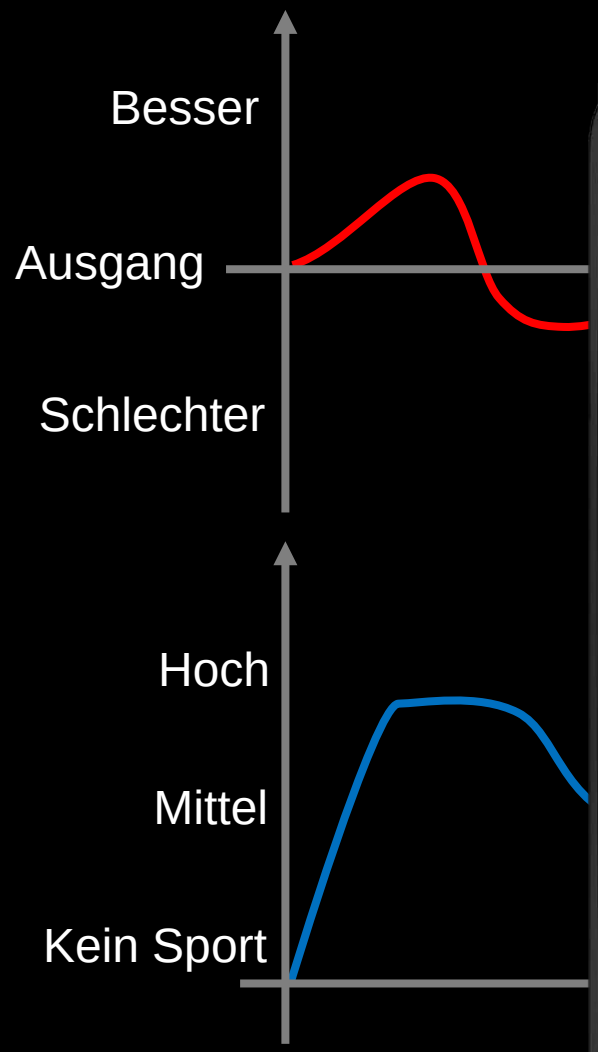




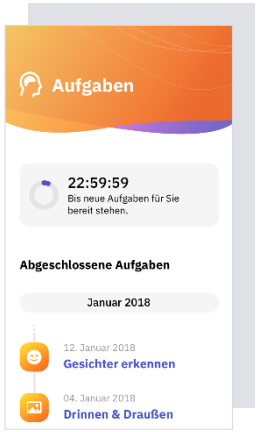


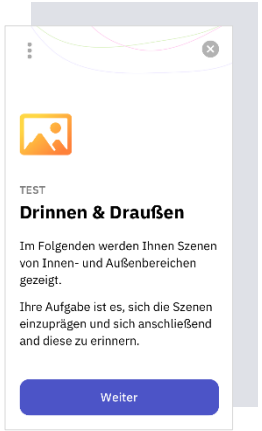
Maass et al. Molec Psychiat.2014

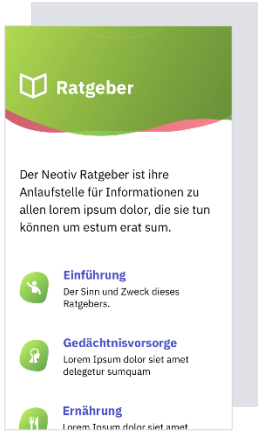
Neuro-adaptives Training



neotiv™







Wissenschaftlich validierte Tests

Life-Style

Ratgeber

Behandlungs-"Companion"